

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. APPLN. NO. 09/944,587

**REMARKS**

1. Applicant requests the Examiner to withdraw the objection to the drawings in view of the enclosed two replacement sheets in which Figs. 4(a), 4(b), 5 and 6 have been labeled as "Prior Art".

2. Applicant respectfully requests the Examiner to withdraw the objection to the disclosure in view of the above corrective amendments to the specification.

3. In view of the above amendment to claim 5, Applicant requests the Examiner to reconsider and withdraw the objection to claim 5.

4, 5, 6, 7. To overcome these obviousness-type double-patenting rejections, Applicant files concurrently herewith a Terminal Disclaimer (with fee) which, *inter alia*, states that the term of any patent granted on the present application will not exceed the term of the commonly owned U.S. Patent No. 6,523,246 B1.

9. Applicant respectfully traverses the rejection of claims 1 and 5 (5/1) under 35 U.S.C. § 102(e) as being anticipated by Rosevear '922.

First, claim 2 has been canceled and its limitations incorporated into claim 1, whereby these rejections of claims 1 and 5 have been rendered literally moot.

Furthermore, in response to the Examiner's comment that the original claim 1 contains "process limitations that do not serve to structurally define or limit the claim", Applicant has amended claim 1 so that it now clearly recites the structural limitations (e.g., means + function).

In any event, a rejection based on anticipation requires that the applied reference disclose, either expressly or inherently, each limitation of each rejected claim, or in other words, that each

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rejected claim is readable, either expressly or inherently, on the disclosure of the applied reference. Clearly, such is **not** the case here.

More specifically, the amended claim 1 (2/1) requires:

An auxiliary jig used with a couple of jigs for forming a structure made of a fiber-reinforced composite by heating under a pressure, wherein said auxiliary jig is provided between said jigs, and comprises means for preventing said jigs from falling down and for restraining a resin contained in said fiber-reinforced composite from flowing out from an interspace between said jigs, wherein said auxiliary jig comprises a rigid portion and an elastic portion.

That is, one major distinguishing feature of the claimed invention (claims 1 and 5) is that the auxiliary jig comprises a "rigid portion" and an "elastic portion", elements not disclosed, either expressly or inherently, by Rosevear.

Rosevear certainly discloses a side former (an auxiliary jig) 38 which is made of a suitable silicon-based material for the expansion and contraction thereof with respect to the sheet 1, stringer 2, and caul 12 without substantially sticking thereto to prevent the curing and attachment of the stringer 2 to sheet 1 at an incorrect position (see column 8, lines 7-11 and Fig. 5), and which is different from Applicant's claimed auxiliary jig comprising a "rigid portion" and an "elastic portion".

In **contrast** to Rosevear, in Applicant's claimed invention (claims 1 and 5), the auxiliary jig 6 comprises a "rigid portion" 61 and an "elastic portion" 62, and, moreover the "rigid portion" 61 may be covered with the "elastic portion" 62 (see page 20, lines 20-23 and Figs. 3(a) and 3(b) of the specification).

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Specifically, Applicant's "rigid portion" 61 acts to prevent the jigs 5a and 5b from falling down, thereby controlling the thickness of the preformed stiffener member 31. The "rigid portion" is preferably made of a material that is excellent in dimensional stability, strength and rigidity, and low in thermal expansivity. Examples of such a material include: metals such as stainless steels and aluminum; graphite; CFRP; etc. (see page 5, lines 1-4 of the specification). The "elastic portion" 62 acts to restrain the resin contained in the fiber-reinforced composite from flowing out from the interspace between the jigs 5a and 5b. The "elastic portion" is preferably made of an elastomer high in flexibility and thermal resistance, and more preferably made of a silicone rubber or a teflon rubber (see page 4, lines 26-27, page 5, lines 1-9 and Figs. 2 and 3(a) of the specification).

Therefore, those skilled in the art referring to Rosevear, which does not teach (either expressly or inherently) or even suggest an auxiliary jig comprising a "rigid portion" and an "elastic portion", would not have been motivated (at the time of the claimed invention) to reach the invention recited in the amended claim 1 (2/1), and, accordingly, the amended claim 1 clearly is neither anticipated nor rendered obvious by Rosevear.

With respect to the amended claim 5, dependent on the amended claim 1, its novelty and patentability (non-obviousness) are clear from the above discussion concerning the amended claim 1.

10. Applicant also respectfully traverses the rejection of claims 1-4 under 35 U.S.C. § 102(e) as being anticipated by Holsinger

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Because claim 2 has been canceled and incorporated in claim 1, only the amended claims 1 and 3-4 will be discussed in the following paragraphs.

Holsinger discloses a tooling assembly 200 including a pressure insert 210 made of high temperature silicon rubber, the tooling assembly 200 comprising an auxiliary jig (flexible hinge tool) 100 including a first tooling portion 110, a vertical tooling portion 120 and a top tooling portion 130, where the bottom tooling portion 110 is connected to the vertical tooling portion 120 by a flexible hinge 140a, and likewise the vertical tooling portion 120 is coupled to the top tooling portion 130 by a flexible hinge 140a (see column 3, lines 20-32; column 5, lines 18-34 and Figs. 1-4).

However, as is clear from this disclosure of Holsinger, the tooling assembly 200 merely corresponds to Applicant's claimed "couple of jigs" 5a and 5b, whereby a resin contained in the fiber-reinforced composite surely flows out from an interspace between the top segment 16 of I-beam 10 and the top tooling portion 130, and thus Holsinger ignores the participation of Applicant's claimed auxiliary jig 6, one of the most important features, of Applicant's invention.

Therefore, those skilled in the art referring to Holsinger, which does not teach (either expressly or inherently) or even suggest the claimed auxiliary jig comprising a "rigid portion" and an "elastic portion", would not be motivated to reach the invention recited in the amended claim 1 (2/1), and, accordingly, the amended claim 1 is neither anticipated nor rendered obvious by Holsinger.

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With respect to the amended claims 3-5 dependent from the amended claim 1, their novelty and patentability (non-obviousness) are clear from the above discussions concerning the amended claim 1.

13. Applicant states that the subject matter of each of the pending claims was commonly owned both at the time any inventions covered therein were made and also at the present time.

14. Applicant traverses the rejection of claim 5 (5/1+2) under 35 U.S.C. § 103(a) as being unpatentable (obvious) over Holsinger in view of Pancorbo et al.

The amended claim 5 recites:

The auxiliary jig according to claim 1, wherein said auxiliary jig is used for producing a stiffened panel by a method comprising the steps of:

placing a skin member and a preformed stiffener member each made of a fiber-reinforced composite on a forming tool;

disposing said couple of jigs on said preformed stiffener member; providing said auxiliary jig between said jigs; and

integrally forming said skin member and said preformed stiffener member by heating under a pressure.

That is, one major distinguishing feature of the claimed invention lies in integrally forming the skin member and the preformed stiffener member by heating under a pressure.

As described in Applicant's specification on pages 1 and 2, the claimed invention was made based on intensive research to solve the problems of **not only** a resin contained in the fiber-reinforced composite often flowing out from an interspace between the jigs 5a and 5b in the

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direction of arrow A shown in Fig. 4(b) while heating under a pressure, **but also** the problem of the jigs 5a and 5b often falling down while heating under a pressure as shown in Fig. 6 (see page 1, line 19 to page 2, line 5 and Figs. 4(b) and 6 of the specification).

Holsinger is silent regarding the curing by heating under a pressure, though it teaches forming a stiffened composite structure from the skin and the uncured composite material by curing (see column 2, lines 4-11). This is one reason why Holsinger ignores the participation of the auxiliary jig of the claimed invention recited in the amended parent claim 1.

Pancorbo teaches the use of heating under pressure in an autoclave curing so that at least one green part (stiffener component) is adhered with another cured part (base component) by means of a structural adhesive (see column 2, lines 24-31). However, Pancorbo fails to teach or suggest the Applicant's claimed **auxiliary jig for retaining the resin flow**.

Therefore, those skilled in the art referring to Holsinger, which ignores the participation of the auxiliary jig of the invention recited in the amended parent claim 1 of the present application, would not reach the subject matter of amended claim 5, even if, for some reason, they would combine Holsinger with Pancorbo's teaching of heating under pressure. Thus, the amended claim 5 would not have been obvious over Holsinger in view of Pancorbo.

15. Applicant also respectfully traverses the rejection of claim 5 under 35 U.S.C. § 103(a) as being unpatentable (obvious) over Holsinger in view of Shiraishi et al.

Holsinger is clearly silent regarding the claimed curing by heating under a pressure, and also fails to teach or suggest the auxiliary jig of the invention recited in the amended parent claim 1.

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Shiraishi teaches the use of heating under pressure to form the preform to a fiber-reinforced composite member (see column 2, lines 19-22), but this reference is **silent** regarding the auxiliary jig of the invention recited in the amended parent claim 1.

Therefore, those skilled in the art, referring to Holsinger and Shiraishi taken alone or in combination, would not reach the invention recited in the amended dependent claim 5, and, accordingly Applicant respectfully submits that the subject matter of amended claim 5 would not have been obvious over Holsinger in view of Shiraishi even if, for some reason, they were to combine the teachings of these two references.

Therefore, Applicant respectfully requests the Examiner to reconsider and withdraw all objections, requirements and rejections, and to allow claims 1 and 3-5, together with the new claims 6, 7 and 8 which define the method aspect, the apparatus aspect and additional details of the auxiliary jig disclosed in Applicant's specification.

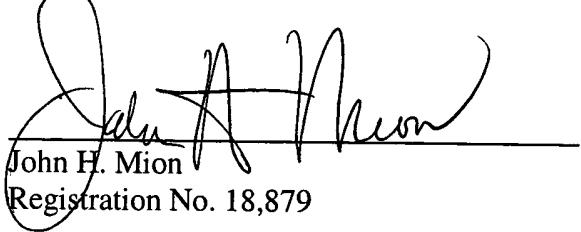
If for any reason the Examiner feels that the application is not now in condition for allowance with claims 1 and 3-8, the Examiner is respectfully requested to **call the undersigned attorney** to discuss any unresolved issues and to expedite the disposition of the application.

Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this application, and any required fee for such extension is to be charged to Deposit Account No. 19-4880. The Commissioner is also authorized to charge any additional fees

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under 37 C.F.R. § 1.16 and/or § 1.17 necessary to keep this application pending in the Patent and Trademark Office or credit any overpayment to said Deposit Account No. 19-4880.

Respectfully submitted,



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